Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

principal dimensions of the Helen Mac Gregor's engines, &c.:—

Cylinders, 42 inches diameter; length of stroke, 4 feet 6 inches.

Air-pump, 33½ inches diameter; length of stroke, 2 feet 4½ inches.

Capacity of condenser, including passage to air-pump, 44 cubic feet.

Capacity of hot well, 36 cubic feet.

Wheel, 23 feet 6 inches diameter to the outside of floats.

Number of revolutions, 23½.

Average pressure of steam in cylinder, 3¾ lbs.

No. XXIV.

ON EDGE'S IMPROVED WATER-METER.

By A. Wright.

Abstract.

The meter consists of a rectangular box, 14 inches long, 13 inches wide and 12 inches high, divided into two chambers by a partition, in the top of which is an aperture forming a communication between the two chambers. A four-way cock is fixed in the partition, the longer end of which opens into one chamber, and the smaller end into the other; the water is conducted to and from this cock by means of tubes passing through one of the chambers.

Parallel with the centre of the cock is a spindle working in upright standards; the spindle carries a driver, which acts upon projections on the plug of the cock, and also carries a metal cylinder hermetically sealed, in which is a heavy ball, less in diameter than the cylinder itself, so that it may freely roll within it. In the upper part of one of the chambers is a float working upon an axis, which carries a pendent arm, having upon its end a friction-pulley.

As the float rises and falls by the action of the water, the arm vibrates, and, acting alternately on the inner sides of two teeth of the spindle, causes the lower end of the cylinder to be raised, and thus the ball rolls to the opposite end of the cylinder, which by its weight moves the spindle suddenly round, and causes a change of inlet and outlet by the motion communicated to the plug of the cock; upon the axis are two teeth working into a crown-wheel, so that the vibrations of the axis give rotary motion to the upright spindle, which is connected with a counting apparatus, also of an improved description.

No. XXV.

WRIGHT'S IMPROVED BAROMETER.

The barometer as commonly constructed is liable to three sources of error, viz. first, from the ever-varying level of the mercury in the cistern, which receives a certain portion of liquid from the tube at every diminution of, or addition to, pressure; secondly, from capillary attraction, the effect of which is to depress the column below its true level, in proportion to the diameter of the tube and the length of the column; and, thirdly, from the variation in the density of the mercury caused by the change of temperature.